

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

MICHAEL PHILIP KAUFMAN,

Plaintiff,

v.

MICROSOFT CORPORATION,

Defendant.

No. 16-CV-2880-LTS-SN

**PLAINTIFF'S DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT
CONTENTIONS TO DEFENDANT MICROSOFT CORPORATION**

Pursuant to LPR 6 and Pre-Trial Scheduling Order No. 1 (D.I. 32) (and N.D. Cal. LPR 3-1 and 3-2, as incorporated therein), Plaintiff, Michael Philip Kaufman ("Kaufman"), through the undersigned counsel, hereby submits his Disclosure of Asserted Claims and Infringement Contentions to Defendant Microsoft Corporation ("Microsoft"), by service upon its counsel.

Kaufman is asserting claims 1-5 of Patent No. 7,885,981 (the "'981 Patent") against Microsoft's ASP.NET Dynamic Data software ("Dynamic Data"). The attached chart identifies specifically where each limitation of each asserted claim is found within Dynamic Data. Microsoft is accused of infringing each of claims 1-5 pursuant to 35 U.S.C. §§ 271(a)-(b) and claims 1-4 pursuant to 35 U.S.C. § 271(c). This is further outlined within the chart. All limitations are literally present.

The priority date to which each of claims 1-5 are entitled is October 31, 2000.

Pursuant to N.D. Cal. LPR 3-1(g), Kaufman asserts that the Schemalive product practices each of claims 1-5.

Pursuant to N.D. Cal. LPR 3-1(h), Kaufman has alleged that Microsoft's infringement of the '981 Patent is willful. The bases for this allegation are detailed in the Complaint (D.I. 1 ¶¶ 64-67). Kaufman notes that discovery is just now beginning. To the extent that discovery yields further information relevant to willfulness, Kaufman reserves the right to rely on such information.

Pursuant to N.D. Cal. LPR 3-2(a)-(b), the parties are finalizing the terms of the proposed confidentiality order. Kaufman will produce responsive documents as soon as practicable after that order is finalized.

Documents responsive to N.D. Cal. LPR 3-2(c) can be found at Bates Nos. MPK45-395. Documents responsive to N.D. Cal. LPR 3-2(d) can be found at Bates Nos. MPK33-35. For N.D. Cal. LPR 3-2(e), information sufficient to show the operation of the instrumentality identified above for N.D. Cal. LPR 3-1(g) is contained within the disclosure of the '981 Patent, including the code therein.

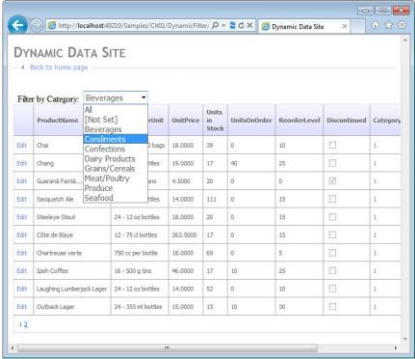
Plaintiff reserves the right to amend these contentions, and to produce and/or rely upon additional documents in support of infringement contentions located through discovery.

Dated: August 23, 2016

A handwritten signature in black ink, appearing to read "Ronald Abramson", written over a horizontal line.

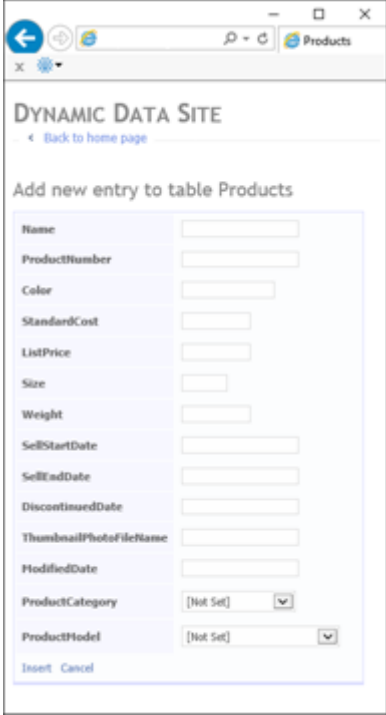
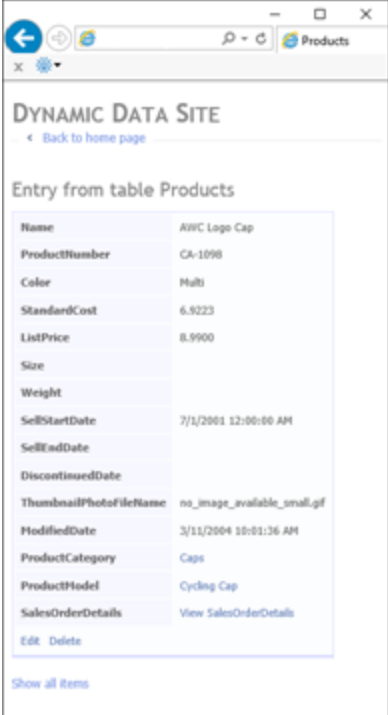

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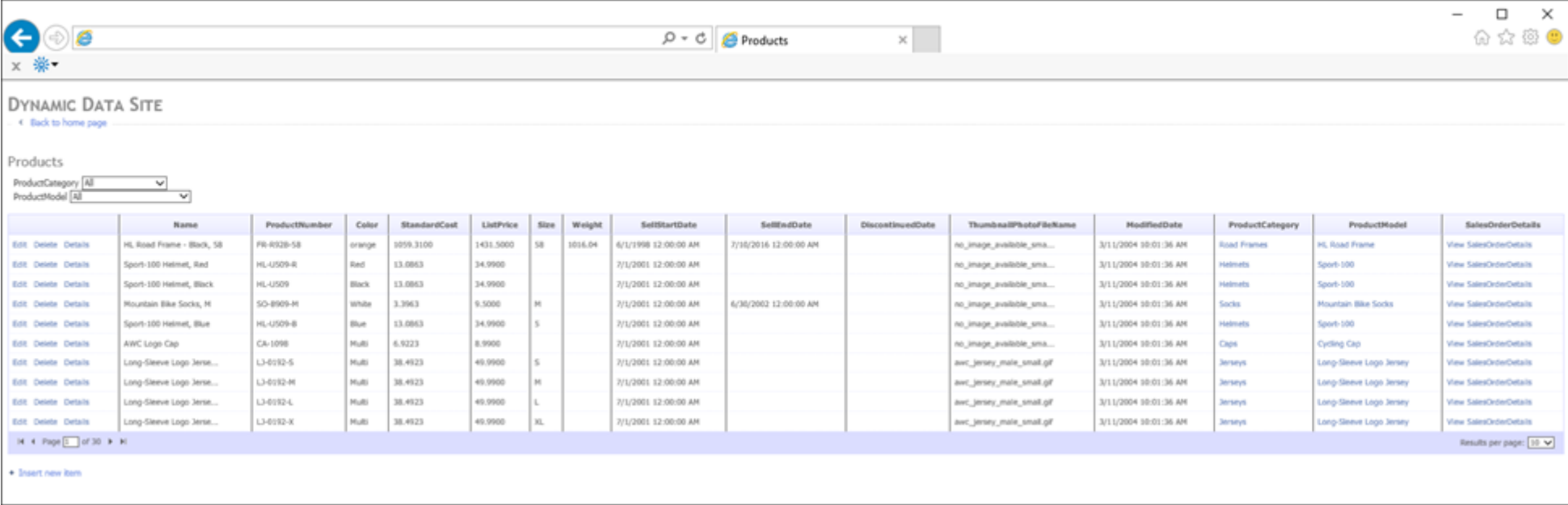
*Attorneys for Plaintiff
Michael Philip Kaufman*

Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data
1. A method for operating a server comprising	1.1	<p>“ASP.NET Dynamic Data lets you create extensible data-driven Web applications”</p> <p>Source: ASP.NET Dynamic Data Overview, available at: https://msdn.microsoft.com/en-us/library/ee845452(v=VS.100).aspx (hereinafter “Dynamic Data Overview”)</p> <p><i>Web applications require servers to function.</i></p> <p><i>Microsoft itself, through its internal use of Dynamic Data in developing software for itself and its customers, performs the method of Claim 1, and further induces users to use the method by providing Dynamic Data and promoting its use. The direct infringement in such a case of induced infringement by Microsoft is the user’s performing the method of Claim 1 by using Dynamic Data. Microsoft further contributes to the infringement of Claim 1 by providing the ASP.NET Dynamic Data software module to users. Microsoft supplies components containing such software modules in the form of tangible media including but not limited to compact discs and DVDs containing the Accused Products, as well as downloads, in which Microsoft makes a server-side tangible copy of Accused Products available for users to copy onto their own tangible media via download, as a result of which the users then have the patented systems for use in practicing the patented processes.</i></p>
a processor for automatically generating an end-user interface for working with the data within a relational database	1.2	<p>“Dynamic Data...automatically generate[s] Web pages for each table in the database. Scaffolding lets you create a functional Web site for viewing and editing data based on the schema of the data.”</p> <p>Source: Dynamic Data Overview.</p> <p><u>Example Dynamic Data screen shot</u></p>  <p>The screenshot shows a web browser window titled "Dynamic Data Site". It displays a table of products. The table has columns: ProductName, UnitPrice, UnitsInStock, and others. The table is filtered by Category: Beverages. The table contains 12 rows of data, including products like "Chai", "Ginger", "Guarana Fruit", "Sangria", "Stevia", "Cider", "Orange", "Lemon", "Lime", "Lemon-Lime", and "Lemon-Lime".</p>
defined within a relational DBMS whose data is stored in machine-readable media and which is accessible to said server,	1.3	<p>Dynamic Data uses either the “LINQ to SQL” model or the “ADO.NET Entity Framework” model to create a data model from a connected database.</p> <p>Source: Walkthrough: Creating a New Dynamic Data Web Site Using Scaffolding, available at https://msdn.microsoft.com/en-us/enu/library/cc488469.aspx (hereinafter “Walkthrough”)</p> <p>“In LINQ to SQL, the data model of a relational database is mapped to an object model expressed in the programming language of the developer.”</p> <p>Source: LINQ to SQL, available at https://msdn.microsoft.com/en-us/library/bb386976.aspx</p> <p>“Entity Framework (EF) is an object-relational mapper that enables .NET developers to work with relational data using domain-specific objects.”</p> <p>Source: Entity Framework, available at https://msdn.microsoft.com/en-us/data/ef</p>

Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data
wherein said relational database comprises a plurality of tables, constraints and relationships stored in said DBMS in accordance with a data model comprising said tables and their column-complements and datatypes, said constraints, and the relationships across said tables, and	1.4	<p>“The data layer contains a model that represents the entities in a database and how these entities relate to each other. ... At run time, Dynamic Data automatically extracts metadata information from the data model, such as data field properties. From this information, it infers how to create UI for displaying and editing data. To render the UI, it uses the following information:</p> <ul style="list-style-type: none">• Information about associations between tables is used to display foreign-key columns and to support navigation between tables.• Data-type information is used to add validation and to select the appropriate field templates for a data field. For example, information about columns that allow null values can be used to determine whether a data field is required. Length information can be used to restrict the maximum length of user's text input. The data type of a field is used to determine which field template to use to render the UI for that field.” <p>Source: ASP.NET Dynamic Data Layer Customization, available at https://msdn.microsoft.com/en-us/library/ee225428.aspx (hereinafter “Dynamic Data Layer Customization”)</p>
wherein said relational database may be of any arbitrary size or complexity, said method comprising	1.5	<p><i>There are no stated limitations on the size or complexity of supported databases in any Dynamic Data documentation.</i></p>
(a) providing an output stream from said server, for user display and input devices,	1.6	<p><i>ASP.NET Dynamic Data delivers a Web application (see Dynamic Data Overview), which incorporates an output stream (i.e., HTML over HTTP, from the web server to a web-browser client).</i></p>
defining a user interface paradigm comprising a set of modes for interacting with a given database table,	1.7	<p><i>The Dynamic Data user interface includes a set of modes for interacting with database tables:</i></p> <p>“<i>Scaffolding</i> refers to the Dynamic Data elements that automatically generate Web pages for each table in a database. These auto-generated Web pages provide create, read, update and delete (CRUD) operations for each table. ... Functional pages are generated automatically and include database CRUD capabilities”</p> <p>Source: ASP.NET Dynamic Data Scaffolding, available at: https://msdn.microsoft.com/en-us/library/ee377606(v=vs.100).aspx (hereinafter “Dynamic Data Scaffolding”)</p>

Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data												
said modes comprising create, retrieve, update and delete,	1.8	“Dynamic Data uses page templates to display tables and to provide CRUD capabilities.” Source: Dynamic Data Scaffolding												
		“Page templates are Web pages that render data from any table in the database. Dynamic Data includes page templates for different views of data” Source: Dynamic Data Overview												
		“The following table lists the default page templates provided by Dynamic Data.												
		<table><tr><th>Page Template</th><th>Description</th></tr><tr><td>Details.aspx</td><td>Provides a detailed view of a single row in the database. This is the default template for select operations. It uses a DetailsView control to display the data.</td></tr><tr><td>Edit.aspx</td><td>Provides a page that lets users edit a single row of a database table. This is the default template for edit operations. It uses a DetailsView control.</td></tr><tr><td>Insert.aspx</td><td>Provides a page that lets users insert a single row into a database table. This is the default template used for insert operations. It uses a DetailsView control.</td></tr><tr><td>List.aspx</td><td>Displays a list of rows from a database table. This is the default template that is used for displaying a table. This template provides DropDownList controls that let users filter data, sort, and page. It uses a GridView control.</td></tr><tr><td>ListDetails.aspx</td><td>Displays a list of rows from a database table. The template lets users filter data, sort, and page. The template uses a GridView control for the list of rows and uses a DetailsView control for the selected row to let users insert a new record. This template presents all-in-one functionality. Dynamic Data does not use it by default. You can change the configuration in the Global.aspx file to use this template instead of using individual templates (such as List.aspx and Edit.aspx) for different operations.</td></tr></table>	Page Template	Description	Details.aspx	Provides a detailed view of a single row in the database. This is the default template for select operations. It uses a DetailsView control to display the data.	Edit.aspx	Provides a page that lets users edit a single row of a database table. This is the default template for edit operations. It uses a DetailsView control.	Insert.aspx	Provides a page that lets users insert a single row into a database table. This is the default template used for insert operations. It uses a DetailsView control.	List.aspx	Displays a list of rows from a database table. This is the default template that is used for displaying a table. This template provides DropDownList controls that let users filter data, sort, and page. It uses a GridView control.	ListDetails.aspx	Displays a list of rows from a database table. The template lets users filter data, sort, and page. The template uses a GridView control for the list of rows and uses a DetailsView control for the selected row to let users insert a new record. This template presents all-in-one functionality. Dynamic Data does not use it by default. You can change the configuration in the Global.aspx file to use this template instead of using individual templates (such as List.aspx and Edit.aspx) for different operations.
		Page Template	Description											
Details.aspx	Provides a detailed view of a single row in the database. This is the default template for select operations. It uses a DetailsView control to display the data.													
Edit.aspx	Provides a page that lets users edit a single row of a database table. This is the default template for edit operations. It uses a DetailsView control.													
Insert.aspx	Provides a page that lets users insert a single row into a database table. This is the default template used for insert operations. It uses a DetailsView control.													
List.aspx	Displays a list of rows from a database table. This is the default template that is used for displaying a table. This template provides DropDownList controls that let users filter data, sort, and page. It uses a GridView control.													
ListDetails.aspx	Displays a list of rows from a database table. The template lets users filter data, sort, and page. The template uses a GridView control for the list of rows and uses a DetailsView control for the selected row to let users insert a new record. This template presents all-in-one functionality. Dynamic Data does not use it by default. You can change the configuration in the Global.aspx file to use this template instead of using individual templates (such as List.aspx and Edit.aspx) for different operations.													
“														
		Source: Dynamic Data Scaffolding												

Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data
and a corresponding display format for each mode;	1.9	<p data-bbox="481 248 1241 297">“Dynamic Data uses page templates to display tables and to provide CRUD capabilities.” Source: Dynamic Data Scaffolding</p> <p data-bbox="481 326 1921 347"><i>See description of default displays above. The below provides non-exhaustive examples of mode displays. Modes are discussed in further depth in relation to Ref. 1.15.</i></p> <div data-bbox="481 375 2153 1252"><div data-bbox="481 375 1099 1252"><p data-bbox="494 383 741 404">“Create” mode - Insert.aspx</p></div><div data-bbox="1099 375 1747 1252"><p data-bbox="1112 383 1513 404">“Retrieve” and “Delete” modes - Details.aspx</p></div><div data-bbox="1747 375 2153 1252"><p data-bbox="1760 383 1999 404">“Update” mode - Edit.aspx</p></div></div>

and a corresponding display format for each mode; (continued)	1.9 Cont.	“Retrieve” and “Delete” modes - List.aspx
		

and a corresponding display format for each mode;

(continued)

1.9
Cont.

An alternate configuration provides a “ListDetails” template providing access to multiple modes:

“You can change the configuration in the Global.aspx file to use this template instead of using individual templates (such as List.aspx and Edit.aspx) for different operations.”
Source: Dynamic Data Scaffolding

“Retrieve” mode and “Delete” mode - ListDetails.aspx
(Includes direct access to “Create” and “Update” modes, as annotated in the discussion of **ALTERNATE CONFIGURATION** in Ref. 15 Cont., below)

The screenshot displays the Microsoft Dynamics Data Site interface. At the top, there's a navigation bar with a back arrow, a search icon, and a 'Products' tab. Below this, the 'DYNAMIC DATA SITE' header is visible with a 'Back to home page' link. The main content area shows a 'Products' section with two dropdown menus: 'ProductCategory' set to 'All' and 'ProductModel' set to 'All'. Below these is a table listing various products. The table has columns for Name, ProductNumber, Color, StandardCost, ListPrice, Size, Weight, SellStartDate, SellEndDate, DiscontinuedDate, ThumbnailPhotoFileName, ModifiedDate, ProductCategory, ProductModel, and SalesOrderDetails. The first row is highlighted in yellow and corresponds to 'HL Road Frame - Black, 58'. Below the table, there's a pagination bar showing 'Page 1 of 30' and 'Results per page: 10'. To the left of the table, a detailed view of the selected product is shown, listing its attributes: Name (HL Road Frame - Black, 58), ProductNumber (FR-R52B-58), Color (orange), StandardCost (1059.3100), ListPrice (1431.5000), Size (58), Weight (1016.04), SellStartDate (6/1/1998 12:00:00 AM), SellEndDate (7/10/2016 12:00:00 AM), DiscontinuedDate, ThumbnailPhotoFileName (no_image_available_small.gif), ModifiedDate (3/11/2004 10:01:36 AM), ProductCategory (Road Frames), ProductModel (HL Road Frame), and SalesOrderDetails (View SalesOrderDetails). At the bottom of this detailed view are links for 'Edit', 'Delete', and 'New'.

	Name	ProductNumber	Color	StandardCost	ListPrice	Size	Weight	SellStartDate	SellEndDate	DiscontinuedDate	ThumbnailPhotoFileName	ModifiedDate	ProductCategory	ProductModel	SalesOrderDetails
Edit Delete Select	HL Road Frame - Black, 58	FR-R52B-58	orange	1059.3100	1431.5000	58	1016.04	6/1/1998 12:00:00 AM	7/10/2016 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Road Frames	HL Road Frame	View SalesOrderDetails
Edit Delete Select	Sport-100 Helmet, Red	HL-4509-R	Red	13.0863	34.9900			7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Helmets	Sport-100	View SalesOrderDetails
Edit Delete Select	Sport-100 Helmet, Black	HL-4509	Black	13.0863	34.9900			7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Helmets	Sport-100	View SalesOrderDetails
Edit Delete Select	Mountain Bike Socks, M	SO-8909-M	White	3.3963	9.5000	M		7/1/2001 12:00:00 AM	6/30/2002 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Socks	Mountain Bike Socks	View SalesOrderDetails
Edit Delete Select	Mountain Bike Socks, L	SO-8909-L	White	3.3963	9.5000	L		7/1/2001 12:00:00 AM	6/30/2002 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Socks	Mountain Bike Socks	View SalesOrderDetails
Edit Delete Select	Sport-100 Helmet, Blue	HL-4509-B	Blue	13.0863	34.9900	S		7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Helmets	Sport-100	View SalesOrderDetails
Edit Delete Select	AZC Logo Cap	CA-1098	PLU8	6.9223	8.9900			7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Caps	Cycling Cap	View SalesOrderDetails
Edit Delete Select	Long-Sleeve Logo Jerse...	LJ-0192-S	PLU8	38.4923	49.9900	S		7/1/2001 12:00:00 AM			awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails
Edit Delete Select	Long-Sleeve Logo Jerse...	LJ-0192-M	PLU8	38.4923	49.9900	M		7/1/2001 12:00:00 AM			awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails
Edit Delete Select	Long-Sleeve Logo Jerse...	LJ-0192-L	PLU8	38.4923	49.9900	L		7/1/2001 12:00:00 AM			awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails

Name HL Road Frame - Black, 58

ProductNumber FR-R52B-58

Color orange

StandardCost 1059.3100

ListPrice 1431.5000

Size 58

Weight 1016.04

SellStartDate 6/1/1998 12:00:00 AM

SellEndDate 7/10/2016 12:00:00 AM

DiscontinuedDate

ThumbnailPhotoFileName no_image_available_small.gif

ModifiedDate 3/11/2004 10:01:36 AM

ProductCategory Road Frames

ProductModel HL Road Frame

SalesOrderDetails [View SalesOrderDetails](#)

[Edit](#) [Delete](#) [New](#)

(b) causing said server to scan said database and apply a body of rules to determine the table structures, constraints and relationships of said data model, and	1.10	<p>“ASP.NET Dynamic Data lets you create extensible data-driven Web applications by inferring at run time the appearance and behavior of data entities from the database schema and deriving UI behavior from it.”</p> <p>“At run time, Dynamic Data automatically extracts metadata information from the data model, such as data field properties.”</p> <p>Source: Dynamic Data Overview</p>
store representations thereof in machine-readable media accessible to said server; and	1.11	<p>“As the illustrations [sic] shows, Dynamic Data architecture contains the following layers:</p> <p>... </p> <ul style="list-style-type: none">• Data layer, which contains the data model that represents the database entities as CLR [Common Language Runtime] types.” <p>Source: Dynamic Data Overview</p>
(c) causing said server to use said representations to construct a corresponding client application for access through said user display and input devices,	1.12	<p>“When scaffolding is enabled, ASP.NET analyzes the data model and generates Web pages dynamically based on the metadata information. These auto-generated Web pages provide CRUD capabilities for each table.”</p> <p>Source: Dynamic Data Overview</p>
wherein said client application provides a connection to said database,	1.13	<p>“When scaffolding is enabled, ASP.NET analyzes the data model and generates Web pages dynamically based on the metadata information. These auto-generated Web pages provide CRUD capabilities for each table.”</p> <p>Source: Dynamic Data Overview</p>
provides displays of the table contents of said database for each of said modes in accordance with the display formats of said paradigm,	1.14	<p><i>See Ref. 1.9 above as to display formats.</i></p> <p>“Page templates are Web pages that render data from any table in the database. Dynamic Data includes page templates for different views of data”</p> <p>Source: Dynamic Data Overview</p> <p>“Dynamic Data uses page templates to display tables and to provide CRUD capabilities.”</p> <p>Source: Dynamic Data Scaffolding</p> <p>The user interacts with the data in tables via “predefined pages to perform CRUD operations”</p> <p>Source: Dynamic Data Overview</p>

<p>integrates into each said mode display processes</p> <p>for representing, navigating, and managing said relationships across tables,</p> <p>for selecting among said modes, and for navigating across said tables and</p> <p>interacting in accordance the selected mode with the data in the tables that are reached by said navigation,</p>	1.15	<p>“At run time, Dynamic Data automatically extracts metadata information from the data model, such as data field properties. From this information, it infers how to create UI for displaying and editing data. To render the UI, it uses the following information:</p> <ul style="list-style-type: none">• Information about associations between tables is used to display foreign-key columns and to support navigation between tables.” <p>Source: Dynamic Data Layer Customization</p> <p>“. . . auto-generated Web pages provide the capability to display, insert, delete, and edit data for each table”</p> <p>Source: Walkthrough</p> <p>The user interacts with the data in tables via “predefined pages to perform CRUD operations”</p> <p>Source: Dynamic Data Overview</p> <p><i>This continues to work on Dynamic Data as the user navigates from table to table.</i></p>
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1.15
Cont.

CREATE mode – These are two images of the same screen, shown side by side, with the right-side image showing an expanded dropdown:

Products

←

→

↺

📄

DYNAMIC DATA SITE

← Back to home page

Add new entry to table Products

Name

ProductNumber

Color

StandardCost

ListPrice

Size

Weight

SellStartDate

SellEndDate

DiscontinuedDate

ThumbnailPhotoFileName

ModifiedDate

ProductCategory

ProductModel

Insert

Cancel

Products

←

→

↺

📄

DYNAMIC DATA SITE

← Back to home page

Add new entry to table Products

Name

ProductNumber

Color

StandardCost

ListPrice

Size

Weight

SellStartDate

SellEndDate

DiscontinuedDate

ThumbnailPhotoFileName

ModifiedDate

ProductCategory

ProductModel

Insert

Cancel

[Not Set]

[Not Set]

Bikes

Components

Clothing

Accessories

Mountain Bikes

Road Bikes

Touring Bikes

Handlebars

Bottom Brackets

Brakes

Chains

Cranksets

Deraileurs

Forks

Headsets

Mountain Frames

Pedals

Road Frames

Saddles

Select Among Modes: Both the Insert (commit) and Cancel (rollback) links will take the user back to the Retrieve mode

Represent: The ProductCategory and ProductModel dropdowns describe all available entities from their (respective) foreign tables, and reference attribute data from those foreign tables to represent each entity in a more descriptive and reader-friendly form than its underlying ID number.

Manage: The ProductCategory and ProductModel dropdowns manage relationships across tables by restricting an inserted Product to pre-existing foreign-table entities.

1.15
Cont.

RETRIEVE and DELETE modes are supported by List.aspx:

Products

ProductCategory: All
ProductModel: All

	Name	ProductNumber	Color	StandardCost	ListPrice	Size	Weight	SelfStartDate	SelfEndDate	DiscontinuedDate	ThumbnailPhotoFileName	ModifiedDate	ProductCategory	ProductModel	SalesOrderDetails
Edit Delete Details	HL Road Frame - Black, 58	FR-R92B-58	orange	1559.3100	1431.3000	58	1516.04	6/1/1998 12:00:00 AM	7/10/2016 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Road Frames	HL Road Frame	View SalesOrderDetails
Edit Delete Details	Sport-100 Helmet, Red	HL-U509-R	Red	13.0863	34.9900			7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Helmets	Sport-100	View SalesOrderDetails
Edit Delete Details	Sport-100 Helmet, Black	HL-U509	Black	13.0863	34.9900			7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Helmets	Sport-100	View SalesOrderDetails
Edit Delete Details	Mountain Bike Socks, M	SO-B90B-M	White	3.3963	9.5000	M		7/1/2001 12:00:00 AM	6/30/2002 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Socks	Mountain Bike Socks	View SalesOrderDetails
Edit Delete Details	Sport-100 Helmet, Blue	HL-U509-B	Blue	13.0863	34.9900	S		7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Helmets	Sport-100	View SalesOrderDetails
Edit Delete Details	AHC Logo Cap	CA-1098	Multi	6.9223	8.9900			7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Caps	Cycling Cap	View SalesOrderDetails
Edit Delete Details	Long-Sleeve Logo Jerse...	LJ-0192-S	Multi	38.4923	49.9900	S		7/1/2001 12:00:00 AM			awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails
Edit Delete Details	Long-Sleeve Logo Jerse...	LJ-0192-M	Multi	38.4923	49.9900	M		7/1/2001 12:00:00 AM			awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails
Edit Delete Details	Long-Sleeve Logo Jerse...	LJ-0192-L	Multi	38.4923	49.9900	L		7/1/2001 12:00:00 AM			awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails
Edit Delete Details	Long-Sleeve Logo Jerse...	LJ-0192-XL	Multi	38.4923	49.9900	XL		7/1/2001 12:00:00 AM			awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails

14 Page 1 of 20 Results per page: 10

Insert new item

Represent: The text-string “View SalesOrderDetails” on each table row represents the relationship of a Product (for a given row) to all foreign-table SalesOrderDetails rows (which are entries on sales orders) for that Product.

Navigate: The “View SalesOrderDetails” hyperlink for a Product (on a given row) navigates to a Retrieve-mode display (List.aspx) for the SalesOrderDetails table, which is pre-filtered to show only records for that Product.

Select Among Modes:
This link allows the user to select the Create mode.

Select Among Modes:
This link allows the user to select the Update mode, as do the “Edit” links for the other table rows.

Select Among Modes:
This link allows the user to select the Delete mode, as do the “Delete” links for the other table rows.

Represent: The stored data for the ProductCategory and ProductModel fields in this table are numerical IDs (or “keys”) – e.g., the “Road Frame” ProductCategory ID is simply “18”. The Dynamic Data code references attribute data from those foreign tables (in this case, the corresponding “Name” fields) in order to represent them in a more descriptive and reader-friendly form.

Navigate: The descriptive “Name” values listed in the ProductCategory and ProductModel columns are hyperlinks, which navigate to a Retrieve-mode display (Details.aspx) for the clicked-upon ProductCategory or ProductModel name.

1.15
Cont.

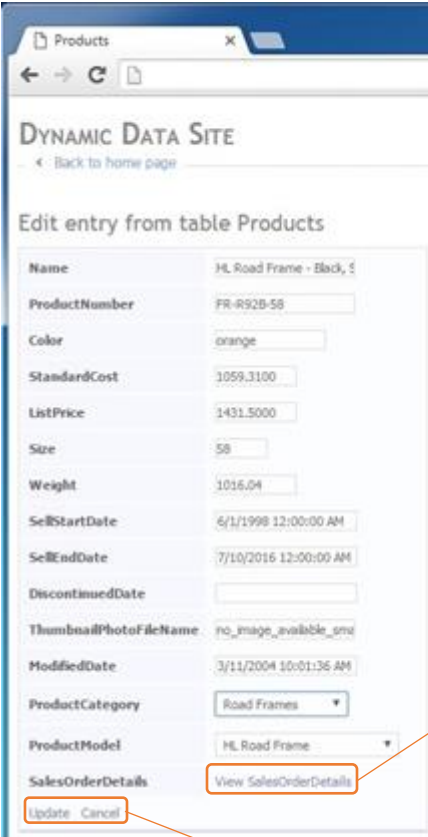
The same List.aspx page for RETRIEVE and DELETE modes is shown with one of the dropdown lists expanded:

			ProductNumber	Color	StandardCost	ListPrice	Size	Weight	SellStartDate	SellEndDate	DiscontinuedDate	ThumbnailPhotoFileName	ModifiedDate	ProductCategory	ProductModel	SalesOrderDetails
Edit	Delete	Set	Black, 58	FR-R325-S8	orange	1059.3100	1431.5000	58	1056.04	6/1/1998 12:00:00 AM	7/10/2016 12:00:00 AM		3/11/2004 10:01:36 AM	Road Frames	HL Road Frame	View SalesOrderDetails
Edit	Delete	Set	Red	HL-U509-R	Red	13.0863	34.9900			7/1/2001 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Helmets	Sport-100	View SalesOrderDetails
Edit	Delete	Set	Black	HL-U509	Black	13.0863	34.9900			7/1/2001 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Helmets	Sport-100	View SalesOrderDetails
Edit	Delete	Set	White, M	SQ-0905-M	White	3.3963	9.5000	M		7/1/2001 12:00:00 AM	6/30/2002 12:00:00 AM	no_image_available_sma...	3/11/2004 10:01:36 AM	Socks	Mountain Bike Socks	View SalesOrderDetails
Edit	Delete	Set	Blue	HL-U509-B	Blue	13.0863	34.9900	S		7/1/2001 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Helmets	Sport-100	View SalesOrderDetails
Edit	Delete	Set		CA-1088	Multi	6.9223	8.9900			7/1/2001 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Caps	Cycling Cap	View SalesOrderDetails
Edit	Delete	Set		L3-0192-S	Multi	38.4923	49.9900	S		7/1/2001 12:00:00 AM		awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails
Edit	Delete	Set		L3-0192-M	Multi	38.4923	49.9900	M		7/1/2001 12:00:00 AM		awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails
Edit	Delete	Set		L3-0192-L	Multi	38.4923	49.9900	L		7/1/2001 12:00:00 AM		awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails
Edit	Delete	Set		L3-0192-X	Multi	38.4923	49.9900	XL		7/1/2001 12:00:00 AM		awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails

Represent: The dropdowns show all ProductCategory and ProductModel values available for filtering this Retrieve-mode display, based on the corresponding "Name" attributes defined within the respective foreign tables. As with the ProductCategory and ProductModel listings within the table itself, these names represent each entity in a more descriptive and reader-friendly form than the underlying ID numbers that are actually present in the base table (and which connect the base-table records to their foreign-table counterparts).

1.15
Cont.

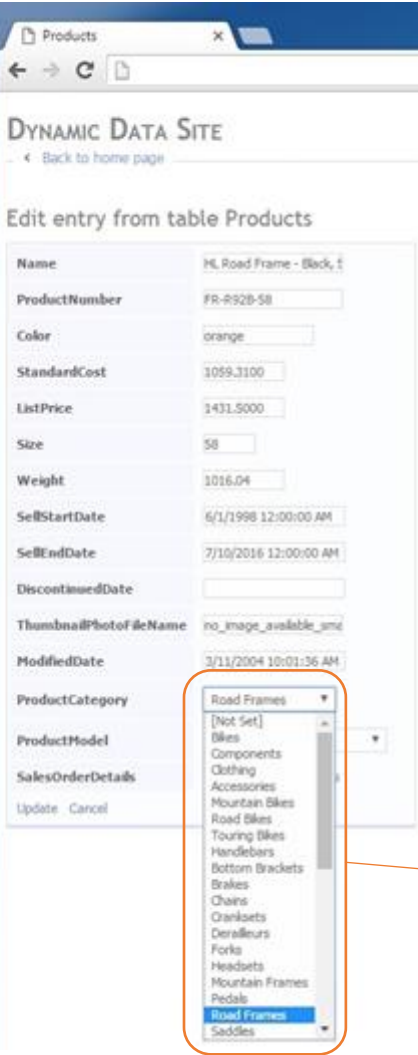
UPDATE mode – These are two images of the same screen, shown side by side, with the right-side image showing an expanded dropdown:



Represent: The text-string “View SalesOrderDetails” represents the relationship of this Product to all foreign-table SalesOrderDetails rows (which are entries on sales orders) for this Product.

Navigate: This “View SalesOrderDetails” hyperlink navigates to a Retrieve-mode display (List.aspx) for the SalesOrderDetails table, which is pre-filtered to show only records for this Product.

Select Among Modes: Both the Update (commit) and Cancel (rollback) links will take the user back to the Retrieve mode (List.aspx).



Represent: The ProductCategory and ProductModel dropdowns describe all available entities from their (respective) foreign tables, and reference attribute data from those foreign tables to represent each entity in a more descriptive and reader-friendly form than its underlying ID number.

Manage: The ProductCategory and ProductModel dropdowns manage relationships across tables by restricting an updated Product to pre-existing foreign-table entities.

1.15 Ctd. An **ALTERNATE CONFIGURATION** combines more modes into a single page, which undergoes mode changes when certain controls are activated. In these several modes, the single page exhibits substantially the same attributes as discussed above with respect to *Insert.aspx*, *List.aspx*, and *Edit.aspx*.

The initial state for this combined-page configuration (which is rendered by *ListDetails.aspx*) is to support **RETRIEVE** and **DELETE** modes (as does *List.aspx*):

Represent: The text-string “View SalesOrderDetails” on each table row represents the relationship of a Product (for a given row) to all foreign-table SalesOrderDetails rows (which are entries on sales orders) for that Product.

Navigate: The “View SalesOrderDetails” hyperlink for a Product (on a given row) navigates to a Retrieve-mode display (*List.aspx*) for the SalesOrderDetails table, which is pre-filtered to show only records for that Product.

	Name	ProductNumber	Color	StandardCost	ListPrice	Size	Weight	SelfStartDate	SelfEndDate	DiscontinuedDate	ThumbnailPhotoFileName	ModifiedDate	ProductCategory	ProductModel	SalesOrderDetails
Edit Delete Select	HL Road Frame - Black, 58	FR-R32B-S8	orange	1059.3100	1431.5000	S8	1016.04	6/1/1998 12:00:00 AM	7/10/2016 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Road Frames	HL Road Frame	View SalesOrderDetails
Edit Delete Select	Sport-100 Helmet, Red	HL-U509-R	Red	13.0863	34.9900			7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Helmets	Sport-100	View SalesOrderDetails
Edit Delete Select	Sport-100 Helmet, Black	HL-U509	Black	13.0863	34.9900			7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Helmets	Sport-100	View SalesOrderDetails
Edit Delete Select	Mountain Bike Socks, M	SO-B909-M	White	3.3963	9.5000	M		7/1/2001 12:00:00 AM	6/30/2002 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Socks	Mountain Bike Socks	View SalesOrderDetails
Edit Delete Select	Mountain Bike Socks, L	SO-B909-L	White	3.3963	9.5000	L		7/1/2001 12:00:00 AM	6/30/2002 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Socks	Mountain Bike Socks	View SalesOrderDetails
Edit Delete Select	Sport-100 Helmet, Blue	HL-U509-B	Blue	13.0863	34.9900	S		7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Helmets	Sport-100	View SalesOrderDetails
Edit Delete Select	AWC Logo Cap	CA-1098	Multi	6.9223	8.9900			7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Caps	Cycling Cap	View SalesOrderDetails
Edit Delete Select	Long-Sleeve Logo Jerse...	L3-0192-S	Multi	38.4923	49.9900	S		7/1/2001 12:00:00 AM			awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails
Edit Delete Select	Long-Sleeve Logo Jerse...	L3-0192-M	Multi	38.4923	49.9900	M		7/1/2001 12:00:00 AM			awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails
Edit Delete Select	Long-Sleeve Logo Jerse...	L3-0192-L	Multi	38.4923	49.9900	L		7/1/2001 12:00:00 AM			awc_jersey_male_small.gif	3/11/2004 10:01:36 AM	Jerseys	Long-Sleeve Logo Jersey	View SalesOrderDetails

Select Among Modes: These links allow the user to select the Delete mode, as do the “Delete” links for the other table rows.

Select Among Modes: These links allow the user to select the Update mode, as do the “Edit” links for the other table rows.

Select Among Modes: This link allows the user to select the Create mode.

Represent: The stored data for the ProductCategory and ProductModel fields in this table are numerical IDs (or “keys”) – e.g., the “Road Frame” ProductCategory ID is simply “18”. The Dynamic Data code references attribute data from those foreign tables (in this case, the corresponding “Name” fields) in order to represent them in a more descriptive and reader-friendly form.

Navigate: The descriptive “Name” values listed in the ProductCategory and ProductModel columns are hyperlinks, which navigate to a Retrieve-mode display (*Details.aspx*) for the clicked-upon ProductCategory or ProductModel name.

1.15
Cont.

Products

DYNAMIC DATA SITE

Back to home page

Products

ProductCategory

ProductModel

ProductNumber

Color

StandardCost

ListPrice

Size

Weight

SeIStartDate

SeIEndDate

DiscontinuedDate

ThumbnailPhotoFileName

ModifiedDate

ProductCategory

ProductModel

SalesOrderDetails

HL Road Frame - Black, 58

FR-R92B-S8

orange

1059.3100

1431.5000

S8

1016.04

6/1/1998 12:00:00 AM

7/10/2016 12:00:00 AM

no_image_available_sma...

3/11/2004 10:01:36 AM

Road Frames

HL Road Frame

View SalesOrderDetails

HL Road Frame - Red

HL-U509-R

Red

13.0863

34.9900

7/1/2001 12:00:00 AM

no_image_available_sma...

3/11/2004 10:01:36 AM

Helmets

Sport-100

View SalesOrderDetails

HL Road Frame - Black

HL-U509

Black

13.0863

34.9900

7/1/2001 12:00:00 AM

no_image_available_sma...

3/11/2004 10:01:36 AM

Helmets

Sport-100

View SalesOrderDetails

Mountain Bike Socks

SO-B909-M

White

3.3963

9.5000

M

7/1/2001 12:00:00 AM

6/30/2002 12:00:00 AM

no_image_available_sma...

3/11/2004 10:01:36 AM

Socks

Mountain Bike Socks

View SalesOrderDetails

Mountain Bike Socks

SO-B909-L

White

3.3963

9.5000

L

7/1/2001 12:00:00 AM

6/30/2002 12:00:00 AM

no_image_available_sma...

3/11/2004 10:01:36 AM

Socks

Mountain Bike Socks

View SalesOrderDetails

Mountain Bike Socks

HL-U509-B

Blue

13.0863

34.9900

S

7/1/2001 12:00:00 AM

no_image_available_sma...

3/11/2004 10:01:36 AM

Helmets

Sport-100

View SalesOrderDetails

Mountain Bike Socks

CA-1098

Multi

6.9223

8.9900

7/1/2001 12:00:00 AM

no_image_available_sma...

3/11/2004 10:01:36 AM

Caps

Cycling Cap

View SalesOrderDetails

Mountain Bike Socks

L3-0192-S

Multi

38.4923

49.9900

S

7/1/2001 12:00:00 AM

awc_jersey_male_small.gif

3/11/2004 10:01:36 AM

Jerseys

Long-Sleeve Logo Jersey

View SalesOrderDetails

Mountain Bike Socks

L3-0192-M

Multi

38.4923

49.9900

M

7/1/2001 12:00:00 AM

awc_jersey_male_small.gif

3/11/2004 10:01:36 AM

Jerseys

Long-Sleeve Logo Jersey

View SalesOrderDetails

Mountain Bike Socks

L3-0192-L

Multi

38.4923

49.9900

L

7/1/2001 12:00:00 AM

awc_jersey_male_small.gif

3/11/2004 10:01:36 AM

Jerseys

Long-Sleeve Logo Jersey

View SalesOrderDetails

Page 1 of 30

Results per page: 10

Name

ProductNumber

Color

StandardCost

ListPrice

Size

Weight

SeIStartDate

SeIEndDate

DiscontinuedDate

ThumbnailPhotoFileName

ModifiedDate

ProductCategory

ProductModel

SalesOrderDetails

Edit

Delete

New

HL Road Frame - Black, 58

FR-R92B-S8

orange

1059.3100

1431.5000

S8

1016.04

6/1/1998 12:00:00 AM

7/10/2016 12:00:00 AM

no_image_available_sma...

3/11/2004 10:01:36 AM

Road Frames

HL Road Frame

View SalesOrderDetails

Represent: The dropdowns show all ProductCategory and ProductModel values available for filtering this Retrieve-mode display, based on the corresponding "Name" attributes defined within the respective foreign tables. As with the ProductCategory and ProductModel listings within the table itself, these names represent each entity in a more descriptive and reader-friendly form than the underlying ID numbers that are actually present in the base table (and which connect the base-table records to their foreign-table counterparts).

Clicking on a "Delete" link results in the following additional display:

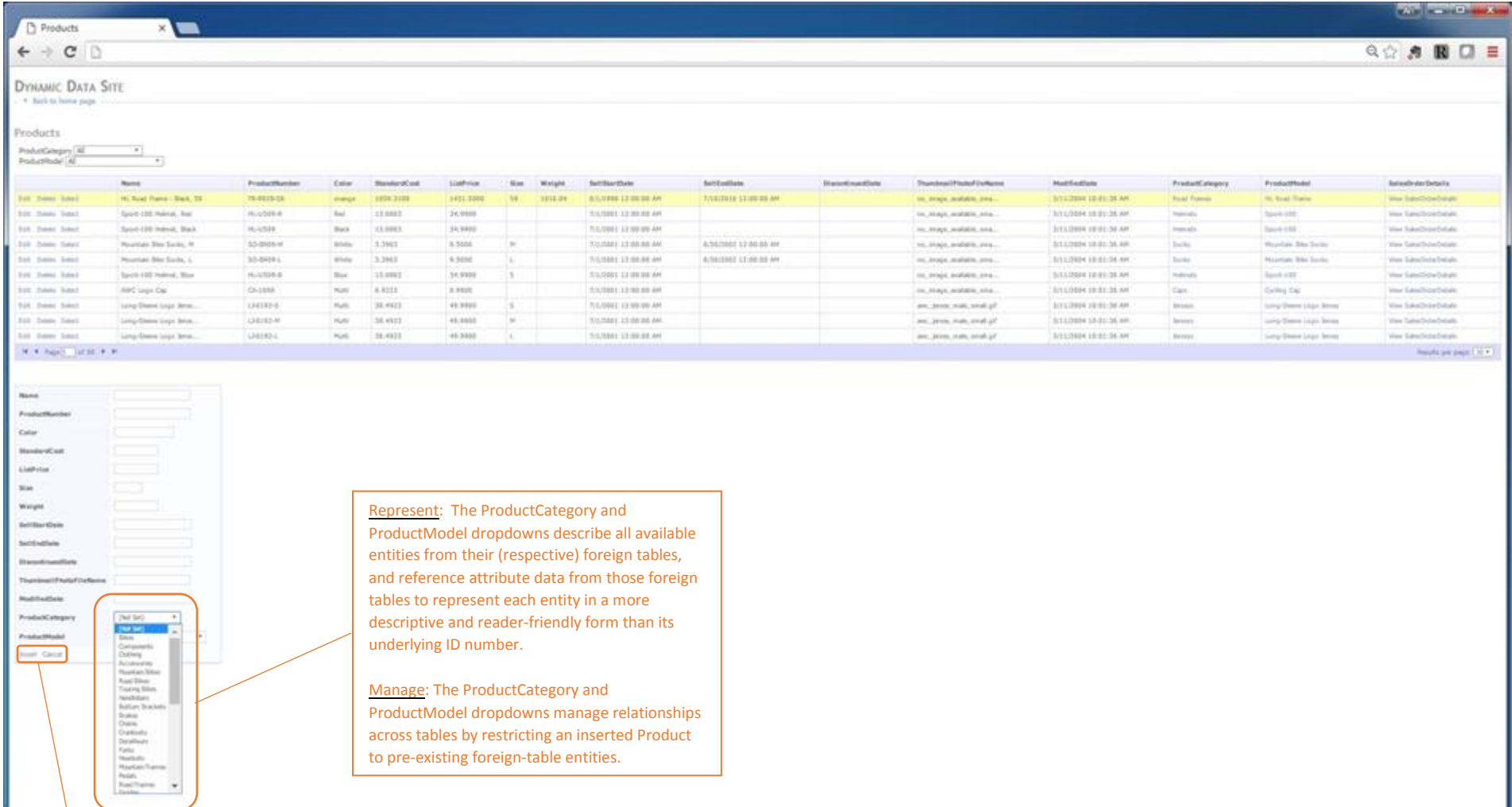
The image shows a web application interface with a confirmation dialog box. The dialog box is a light gray rectangle with a title bar. It contains the text "Are you sure you want to delete this item?" followed by a checkbox and the text "Prevent this page from creating additional dialogs." At the bottom of the dialog are two buttons: "Cancel" and "OK".

In the background, there is a table with the following columns: "Name", "Price", and "SellStartDate". The table contains several rows of product data, including "HL Road Fr...", "Sport-100 H...", "Mountain Bike Socks, M", "Mountain Bike Socks, L", "Sport-100 Helmet, Blue", "AWC Logo Cap", and "Long-Sleeve Logo Jerse...". The last row is highlighted in yellow.

1.15
Cont.

Clicking on the “New” link in the record display for the selected row causes that record display to transition into **CREATE** mode.

The resulting display is essentially the equivalent of List.aspx above Insert.aspx:



1.15
Cont.

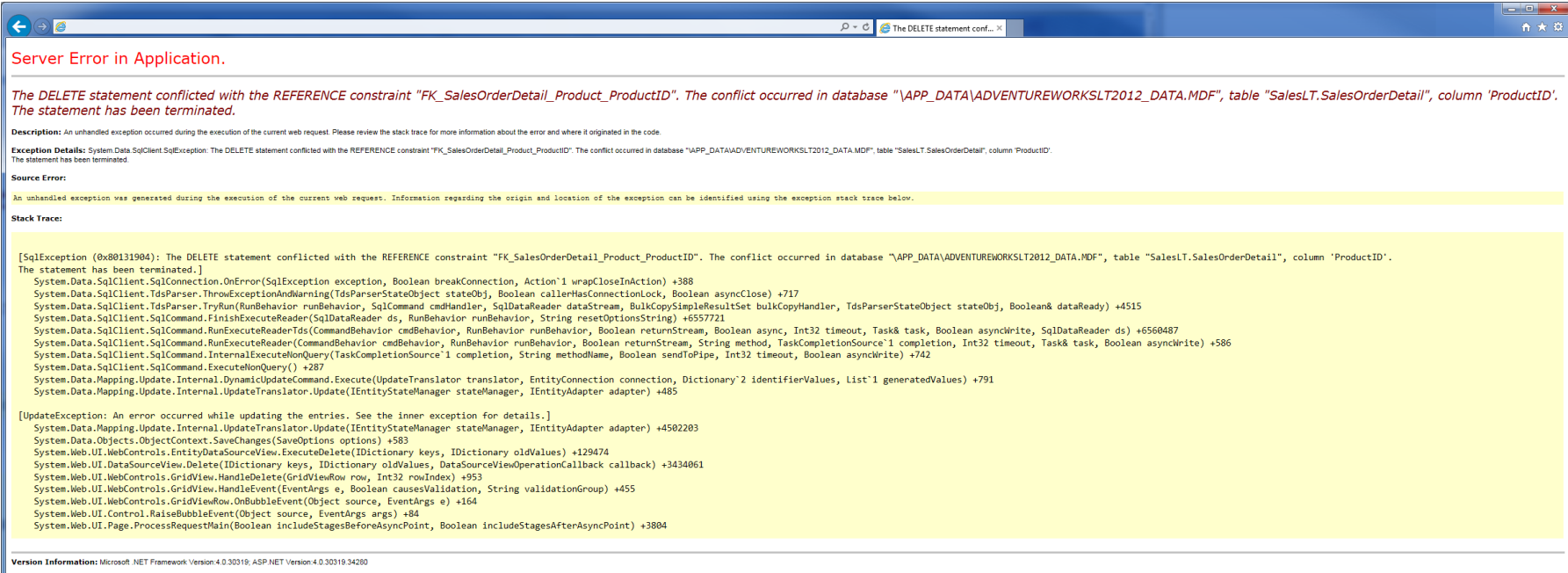
Clicking on the “Edit” link for the first item in the table causes the corresponding record display to transition into one of two **UPDATE** modes. In this variant, editable fields appear for the selected row within the table itself. This display incorporates all of the same “represent”, “select among modes”, and “navigate” features discussed above (for the primary-configuration **UPDATE** mode), which will not be repeated here. The dropdown list for ProductCategory is shown as expanded:

The screenshot shows the 'Dynamic Data Site' interface with a table of products. The table has columns: Name, ProductNumber, Color, StandardCost, ListPrice, Size, Weight, SellStartDate, SellEndDate, DiscontinuedDate, Thumbnail/PhotoFileName, MostRecentDate, ProductCategory, ProductModel, and SalesOrder Details. The first row is highlighted in yellow. Below the table, there is a detailed view of the selected product (ProductNumber: 16-0000-03). Annotations include:

- Select Among Modes:** Both the Update (commit) and Cancel (rollback) links will take the user back to the initial (display) mode. (Points to the 'Update' and 'Cancel' links at the bottom left of the table.)
- Represent:** The ProductCategory and ProductModel dropdowns describe all available entities from their (respective) foreign tables, and reference attribute data from those foreign tables to represent each entity in a more descriptive and reader-friendly form than its underlying ID number. (Points to the dropdown menus in the detailed view.)
- Manage:** The ProductCategory and ProductModel dropdowns manage relationships across tables by restricting an updated Product to pre-existing foreign-table entities. (Points to the dropdown menus in the detailed view.)
- Alternate "Edit" link** (Points to the 'Edit' link at the bottom left of the table.)

*In the second of the two **UPDATE** modes (not shown here), as activated by clicking on the alternate "Edit" link at the bottom of the expanded single-record display), the editable fields appear in the expanded single-record display (similar to the **CREATE**-mode display above).*

The resulting display is essentially the equivalent of *List.aspx* above *Edit.aspx*.

<p>while observing and enforcing relational interdependencies among data across said tables.</p>	<p>1.16</p>	<p>Dynamic Data “will choose the appropriate field template based on the field’s type.”</p> <p>Foreign Key fields use a “HyperLink control that links to the associated entity in display mode, or a DropDownList control in edit mode.”</p> <p>Dynamic Data “[d]isplays foreign-key columns . . . using meaningful textual representations (rather than displaying a numeric id value) that are rendered as hyperlinks. Clicking a link navigates to a scaffolded page for the parent table. In edit mode, foreign keys are rendered as drop-down lists that let a user modify the foreign-key value for that record.”</p> <p>Dynamic Data “[t]urns one-to-many relationship columns . . . into hyperlinks that navigate to a scaffolded page for that table.”</p> <p>Parent/child relationships are represented by a “HyperLink control that navigates to a page that lists the records associated with the row.”</p> <p>Source: An Introduction to Dynamic Data, available at: http://devproconnections.com/net-framework/introduction-dynamic-data</p> <p>An example of observing and enforcing relational interdependencies occurs when a user attempts to delete a foreign key. The following error is displayed:</p> <div data-bbox="481 542 2265 1190"><p>Server Error in Application.</p><p><i>The DELETE statement conflicted with the REFERENCE constraint "FK_SalesOrderDetail_Product_ProductID". The conflict occurred in database "APP_DATA\ADVENTUREWORKSLT2012_DATA.MDF", table "SalesLT.SalesOrderDetail", column 'ProductID'. The statement has been terminated.</i></p><p>Description: An unhandled exception occurred during the execution of the current web request. Please review the stack trace for more information about the error and where it originated in the code.</p><p>Exception Details: System.Data.SqlClient.SqlException: The DELETE statement conflicted with the REFERENCE constraint "FK_SalesOrderDetail_Product_ProductID". The conflict occurred in database "APP_DATA\ADVENTUREWORKSLT2012_DATA.MDF", table "SalesLT.SalesOrderDetail", column "ProductID". The statement has been terminated.</p><p>Source Error:</p><p>An unhandled exception was generated during the execution of the current web request. Information regarding the origin and location of the exception can be identified using the exception stack trace below.</p><p>Stack Trace:</p><pre>[SqlException (0x80131904): The DELETE statement conflicted with the REFERENCE constraint "FK_SalesOrderDetail_Product_ProductID". The conflict occurred in database "APP_DATA\ADVENTUREWORKSLT2012_DATA.MDF", table "SalesLT.SalesOrderDetail", column 'ProductID'. The statement has been terminated.] System.Data.SqlClient.SqlConnection.OnError(SqlException exception, Boolean breakConnection, Action`1 wrapCloseInAction) +388 System.Data.SqlClient.TdsParser.ThrowExceptionAndWarning(TdsParserStateObject stateObj, Boolean callerHasConnectionLock, Boolean asyncClose) +717 System.Data.SqlClient.TdsParser.TryRun(RunBehavior runBehavior, SqlCommand cmdHandler, SqlDataReader dataStream, BulkCopySimpleResultSet bulkCopyHandler, TdsParserStateObject stateObj, Boolean& dataReady) +4515 System.Data.SqlClient.SqlCommand.FinishExecuteReader(SqlDataReader ds, RunBehavior runBehavior, String resetOptionsString) +6557721 System.Data.SqlClient.SqlCommand.RunExecuteReaderTds(CommandBehavior cmdBehavior, RunBehavior runBehavior, Boolean returnStream, Boolean async, Int32 timeout, Task& task, Boolean asyncWrite, SqlDataReader ds) +6560487 System.Data.SqlClient.SqlCommand.RunExecuteReader(CommandBehavior cmdBehavior, RunBehavior runBehavior, Boolean returnStream, String method, TaskCompletionSource`1 completion, Int32 timeout, Task& task, Boolean asyncWrite) +586 System.Data.SqlClient.SqlCommand.InternalExecuteNonQuery(TaskCompletionSource`1 completion, String methodName, Boolean sendToPipe, Int32 timeout, Boolean asyncWrite) +742 System.Data.SqlClient.SqlCommand.ExecuteNonQuery() +287 System.Data.Mapping.Update.Internal.DynamicUpdateCommand.Execute(UpdateTranslator translator, EntityConnection connection, Dictionary`2 identifierValues, List`1 generatedValues) +791 System.Data.Mapping.Update.Internal.UpdateTranslator.Update(IEntityStateManager stateManager, IEntityAdapter adapter) +485 [UpdateException: An error occurred while updating the entries. See the inner exception for details.] System.Data.Mapping.Update.Internal.UpdateTranslator.Update(IEntityStateManager stateManager, IEntityAdapter adapter) +4502203 System.Data.Objects.ObjectContext.SaveChanges(SaveOptions options) +583 System.Web.UI.WebControls.EntityDataSourceView.ExecuteDelete(IDictionary keys, IDictionary oldValues) +129474 System.Web.UI.DataSourceView.Delete(IDictionary keys, IDictionary oldValues, DataSourceViewOperationCallback callback) +3434061 System.Web.UI.WebControls.GridView.HandleDelete(GridViewRow row, Int32 rowIndex) +953 System.Web.UI.WebControls.GridView.HandleEvent(EventArgs e, Boolean causesValidation, String validationGroup) +455 System.Web.UI.WebControls.GridViewRow.OnBubbleEvent(Object source, EventArgs e) +164 System.Web.UI.Control.RaiseBubbleEvent(Object source, EventArgs args) +84 System.Web.UI.Page.ProcessRequestMain(Boolean includeStagesBeforeAsyncPoint, Boolean includeStagesAfterAsyncPoint) +3804</pre><p>Version Information: Microsoft .NET Framework Version 4.0.30319; ASP.NET Version 4.0.30319.34260</p></div>
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Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data
2. The method of claim 1, further comprising	2a	<p><i>See Ref. 1.1-16, above.</i></p> <p><i>Microsoft itself, through its internal use of Dynamic Data in developing software for itself and its customers, performs the method of Claim 2, and further induces users to use the method by providing Dynamic Data and promoting its use. The direct infringement in such a case of induced infringement by Microsoft is the user's performing the method of Claim 2 by using Dynamic Data. Microsoft further contributes to the infringement of Claim 2 by providing the ASP.NET Dynamic Data software module to users. Microsoft supplies components containing such software modules in the form of tangible media including but not limited to compact discs and DVDs containing the Accused Products, as well as downloads, in which Microsoft makes a server-side tangible copy of Accused Products available for users to copy onto their own tangible media via download, as a result of which the Users then have the patented systems for use in practicing the patented processes.</i></p>
incorporating within said client application components for revealing and enforcing non-relational constraints defined within said database for each individual table-column.	2b	<p><i>Below are five pairs of screens, the left screen showing the Dynamic Data front-end, and the right showing the underlying database, in relevant part.</i></p>

Patent No. US 7,885,981

Ref.

Microsoft ASP.NET Dynamic Data

DYNAMIC DATA SITE

Back to home page

Edit entry from table Customers

NameStyle ☐

Title Professo

FirstName Orlando

MiddleName N.

LastName Gee

Suffix

CompanyName A Bike Store

SalesPerson adventure-works\pamel

EmailAddress orlando0@adventure-w

Phone 245-555-0173abc

PasswordHash L/Rlvoczp4w7RWmEgXX

PasswordSalt 1KjXYs4=

ModifiedDate 8/1/2001 12:00:00 AM

CustomerAddresses View CustomerAddresses

SalesOrderHeaders View SalesOrderHeaders

Update Cancel

Width of field varies (up to a preset maximum), and input is blocked after the maximum width is reached (8 characters, in the case of "Title").

ScaffoldingEvaluation - Microsoft Visual Studio

FILE EDIT VIEW WEBSITE BUILD DEBUG TEAM TOOLS TEST ANALYZE WINDOW HELP

Launch Windows App Debug Any CPU

AdventureWorksMo...I.edmx [Diagram1]*

Customer

Properties

- CustomerID
- NameStyle
- Title
- FirstName
- MiddleName
- LastName
- Suffix
- CompanyName
- SalesPerson
- EmailAddress
- Phone
- PasswordHash
- PasswordSalt
- rowguid
- ModifiedDate

Navigation Properties

- CustomerAddre...
- SalesOrderHead...

Properties

AdventureWorksLT2012_DataModel.Customer.Title Proper

Code Generation

Getter Public

Setter Public

Facets

Fixed Length False

Max Length 8

Unicode True

General

Concurrency Mode None

Default Value (None)

Documentation

Entity Key False

Name Title

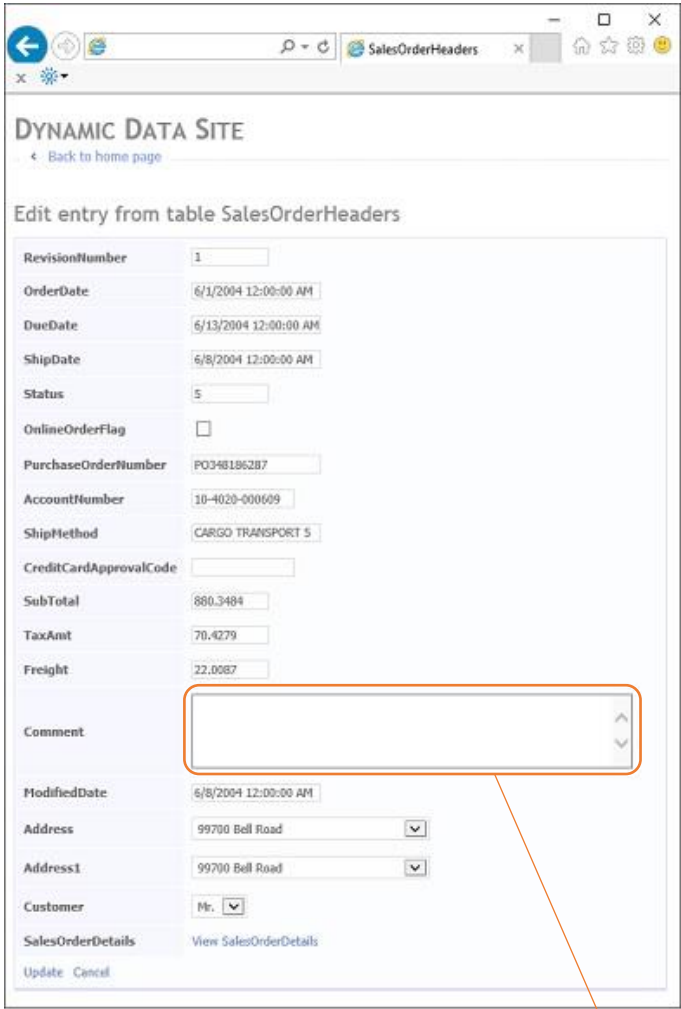
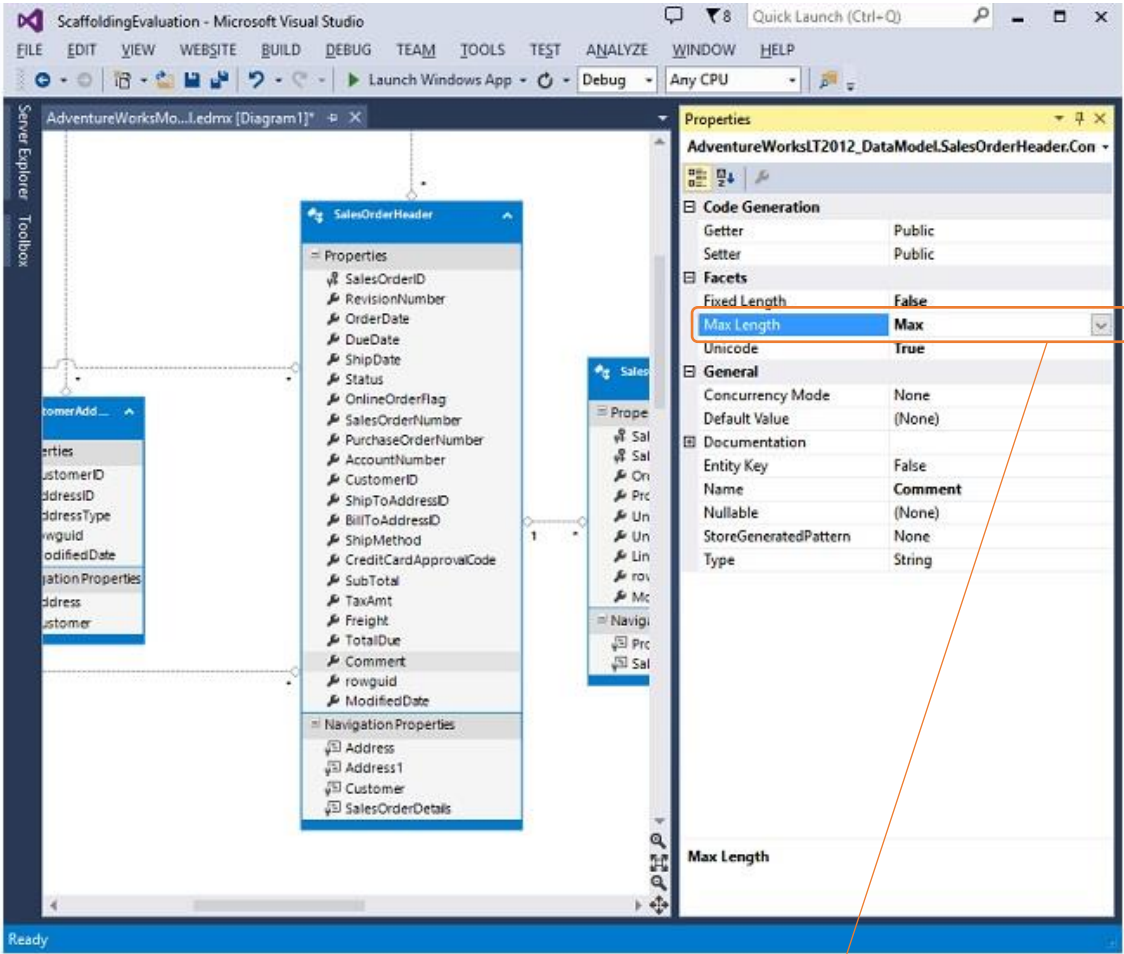
Nullable (None)

StoreGeneratedPattern None

Type String

Max Length

Underlying database definition for maximum-permitted-length constraint, in this case for the Title field.

Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data
		<div data-bbox="478 240 1158 1243"></div> <div data-bbox="870 1317 1365 1395"><p>Using a multiline, vertically scrollable control for text fields whose length-limit exceeds a threshold</p></div> <div data-bbox="1279 240 2403 1188"></div> <div data-bbox="1868 1250 2300 1356"><p>Underlying database definition for text field with vertically scrollable control, shown on the panel to the left</p></div>

The image consists of two side-by-side screenshots illustrating required constraints in ASP.NET Dynamic Data.

Left Screenshot: Dynamic Data Site

The browser window shows the "DYNAMIC DATA SITE" for "SalesOrderDetails". The page title is "Edit entry from table SalesOrderDetails". A red box highlights the "List of validation errors" section, which contains the message: "The OrderQty field is required." Below this, the "OrderQty" field is shown with a red error icon. The "UnitPrice" field is set to 356.8980, "UnitPriceDiscount" is 0.0000, "ModifiedDate" is 6/1/2004 12:00:00 AM, "Product" is ML Road Frame-W - Yellow, 48, and "SalesOrderHeader" is SO71774. The "Update" button is visible.

Right Screenshot: Microsoft Visual Studio

The Visual Studio window shows the "AdventureWorksMo...1.edmx [Diagram1]" diagram. The "SalesOrderDetail" entity is selected, and its properties are listed. The "OrderQty" property is highlighted. The "Properties" window on the right shows the "AdventureWorksLT2012_DataModel.SalesOrderDetail.OrderQty" property. The "Nullable" property is set to "False". A red box highlights the "Nullable" property, and a callout box explains: "Nullable Determines whether the property is nullable." Another callout box points to the "OrderQty" field in the diagram, stating: "Underlying database definition for required constraint (not nullable) for the OrderQty field."

Patent No. US 7,885,981

Ref.

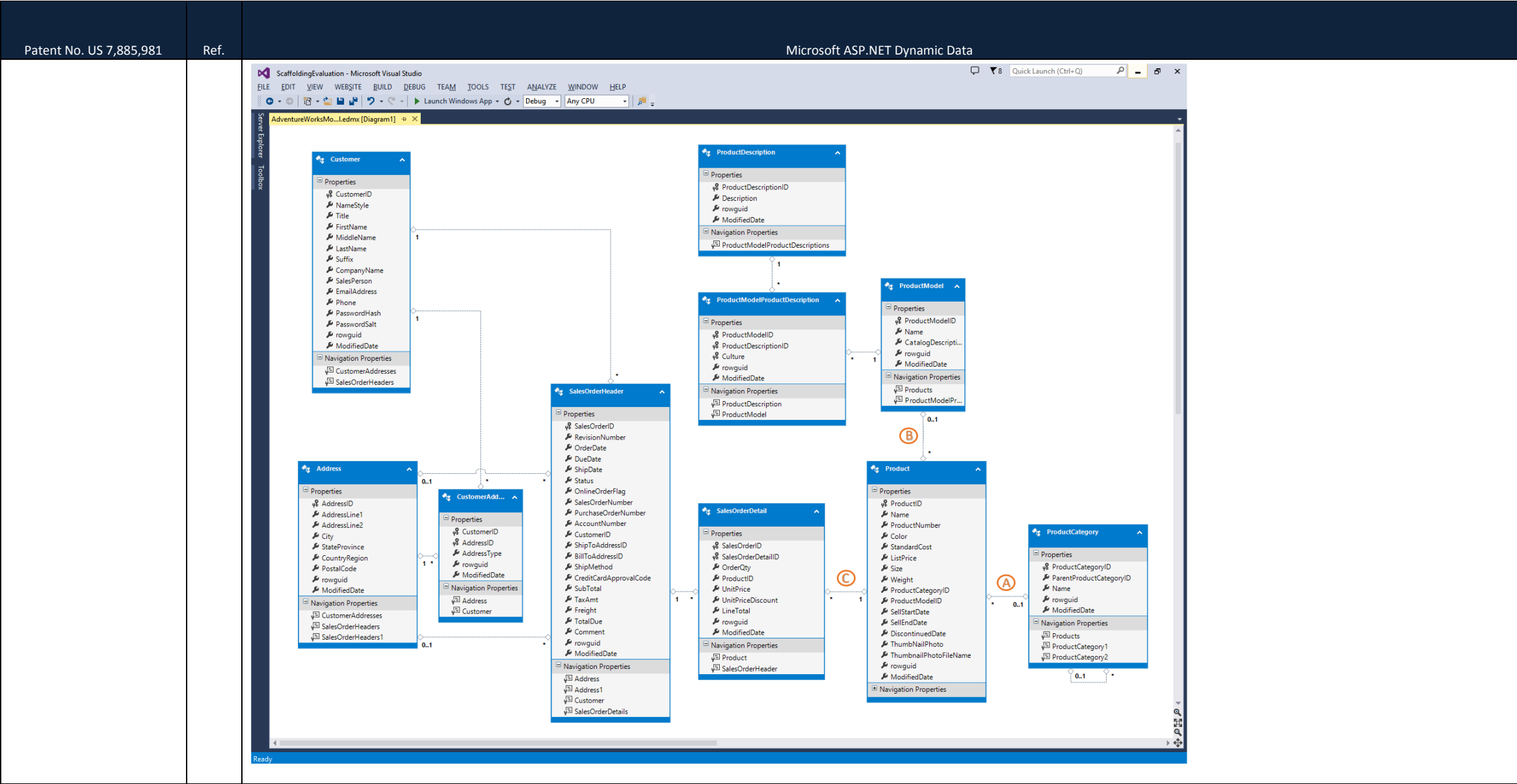
The screenshot displays the Microsoft ASP.NET Dynamic Data application interface. On the left, a web browser window shows the 'DYNAMIC DATA SITE' for 'SalesOrderDetails'. It includes a 'List of validation errors' section with a red bullet point: 'The field UnitPrice must be a valid decimal.' Below this is a form with fields for OrderQty, UnitPrice (containing 'ABCDE'), UnitPriceDiscount, ModifiedDate, Product, and SalesOrderHeader. An orange box highlights the UnitPrice field and its validation error. On the right, the Visual Studio IDE shows the 'AdventureWorksLT2012_DataModel.SalesOrderDetail.Unitf' entity in the Properties window. The 'Type' dropdown is set to 'Decimal'. An orange box highlights this dropdown. The background shows the Entity Model Diagram with the SalesOrderDetail entity and its relationships.

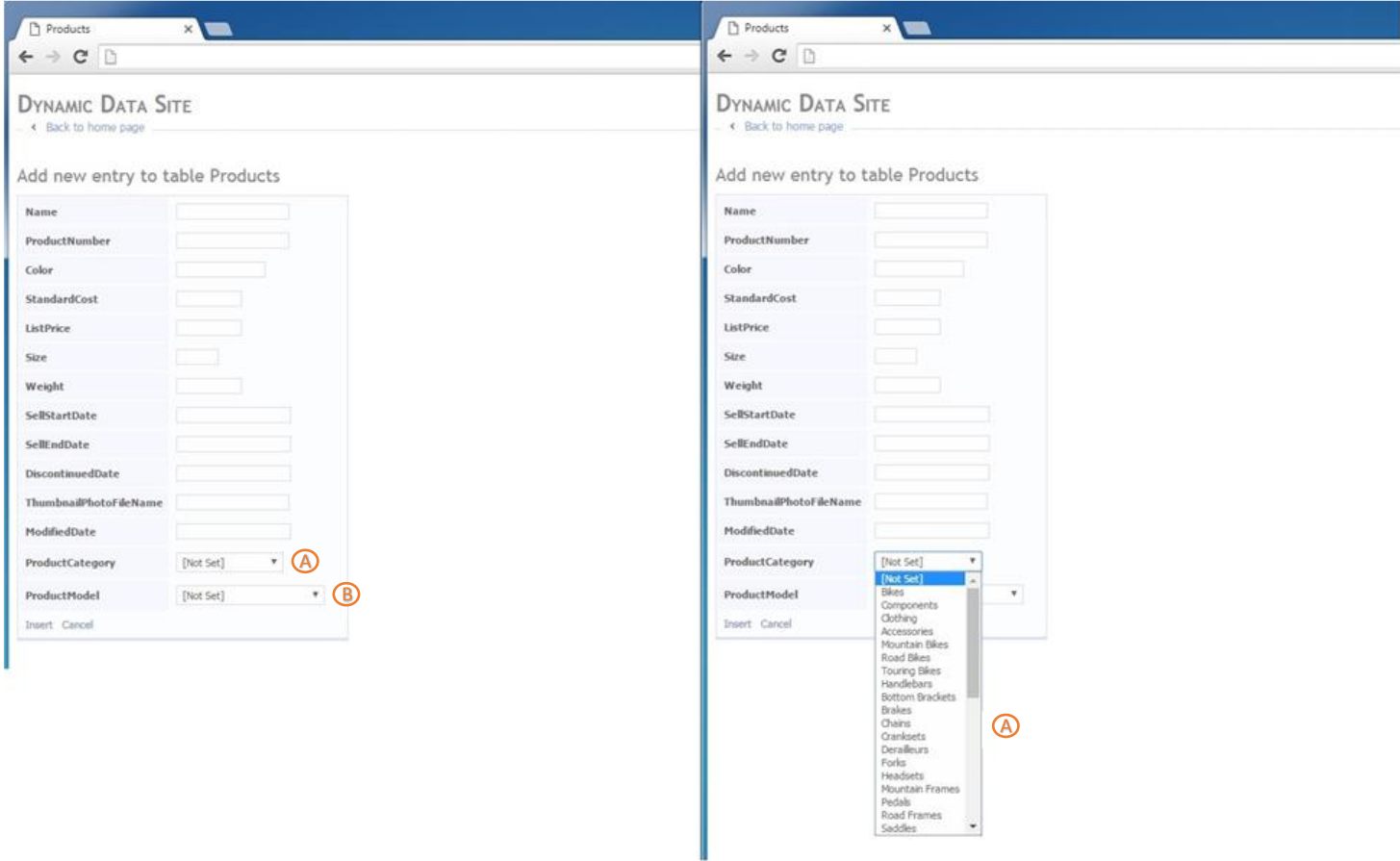
Revealing and enforcing a numeric-datatype constraint, in this case for the UnitPrice field.

Underlying database definition for numeric-datatype constraint for the UnitPrice field.

The figure consists of two side-by-side screenshots. The left screenshot shows the 'DYNAMIC DATA SITE' for 'SalesOrderDetails'. It displays a form with fields: OrderQty (1), UnitPrice (356.898), UnitPriceDiscount (0.0000), ModifiedDate (2/31/2016), Product (ML Road Frame-W - Yellow, 48), and SalesOrderHeader (5071774). Below the form, a 'List of validation errors' is shown: 'The value is not valid.' and 'The field ModifiedDate is invalid.'. A red box highlights the 'ModifiedDate' field in the form, with a callout stating '* The field ModifiedDate is invalid.'. The right screenshot shows the 'Microsoft ASP.NET Dynamic Data' application in Visual Studio. It displays the 'AdventureWorksLT2012_DataModel.SalesOrderDetail.Modi' entity. The 'Properties' pane on the right shows the 'ModifiedDate' property with a 'Type' of 'DateTime'. A red box highlights the 'Type' dropdown, with a callout stating 'Underlying database definition for date-datatype constraint for the ModifiedDate'.

Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data
3. The method of claim 1,	3a	<p><i>See Ref. 1.1-16, above.</i></p> <p><i>Microsoft itself, through its internal use of Dynamic Data in developing software for itself and its customers, performs the method of Claim 3, and further induces users to use the method by providing Dynamic Data and promoting its use. The direct infringement in such a case of induced infringement by Microsoft is the user's performing the method of Claim 3 by using Dynamic Data. Microsoft further contributes to the infringement of Claim 3 by providing the ASP.NET Dynamic Data software module to users. Microsoft supplies components containing such software modules in the form of tangible media including but not limited to compact discs and DVDs containing the Accused Products, as well as downloads, in which Microsoft makes a server-side tangible copy of Accused Products available for users to copy onto their own tangible media via download, as a result of which the Users then have the patented systems for use in practicing the patented processes.</i></p>
wherein said relational interdependencies are embodied in referential-integrity constraints within the underlying database.		<p><i>Below is a schema diagram for the underlying database, and thereafter are multiple screens for the Dynamic Data front-end showing the interdependencies. Items A, B, and C are notated in the schema diagram and in the following screens.</i></p>



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Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data																																																																																																																																																																																
		<div><div><div><div><div><div>Products</div><div><div>Dynamic Data Site</div><div>Back to home page</div></div><div>Products</div><div><div>ProductCategory All</div><div>ProductModel All</div></div><table><tr><th></th><th>Name</th><th>ProductNumber</th><th>Color</th><th>StandardCost</th><th>ListPrice</th><th>Size</th><th>Weight</th><th>SeStartDate</th><th>SeEndDate</th><th>DiscontinuedDate</th><th>Thumbnail#PhotoFileName</th><th>ModifiedDate</th><th>ProductCategory</th><th>ProductModel</th><th>SalesOrderDetails</th></tr><tr><td><div>Edit Delete Select</div></td><td>HL Road Frame - Black, S8</td><td>FR-832B-S8</td><td>orange</td><td>1059.2100</td><td>1431.5000</td><td>S8</td><td>1016.04</td><td>6/1/1998 12:00:00 AM</td><td>7/10/2016 12:00:00 AM</td><td></td><td>no_image_available_sma...</td><td>3/11/2004 10:01:36 AM</td><td>Road Frames</td><td>HL Road Frame</td><td>View SalesOrderDetails</td></tr><tr><td><div>Edit Delete Select</div></td><td>Sport-100 Helmet, Red</td><td>HL-U509-R</td><td>Red</td><td>13.0863</td><td>34.9900</td><td></td><td></td><td>7/1/2001 12:00:00 AM</td><td></td><td></td><td>no_image_available_sma...</td><td>3/11/2004 10:01:36 AM</td><td>Helmet</td><td>Sport-100</td><td>View SalesOrderDetails</td></tr><tr><td><div>Edit Delete Select</div></td><td>Sport-100 Helmet, Black</td><td>HL-U509</td><td>Black</td><td>13.0863</td><td>34.9900</td><td></td><td></td><td>7/1/2001 12:00:00 AM</td><td></td><td></td><td>no_image_available_sma...</td><td>3/11/2004 10:01:36 AM</td><td>Helmet</td><td>Sport-100</td><td>View SalesOrderDetails</td></tr><tr><td><div>Edit Delete Select</div></td><td>Mountain Bike Socks, M</td><td>SO-B909-M</td><td>White</td><td>3.3963</td><td>9.5000</td><td>M</td><td></td><td>7/1/2001 12:00:00 AM</td><td>6/30/2002 12:00:00 AM</td><td></td><td>no_image_available_sma...</td><td>3/11/2004 10:01:36 AM</td><td>Socks</td><td>Mountain Bike Socks</td><td>View SalesOrderDetails</td></tr><tr><td><div>Edit Delete Select</div></td><td>Mountain Bike Socks, L</td><td>SO-B909-L</td><td>White</td><td>3.3963</td><td>9.5000</td><td>L</td><td></td><td>7/1/2001 12:00:00 AM</td><td>6/30/2002 12:00:00 AM</td><td></td><td>no_image_available_sma...</td><td>3/11/2004 10:01:36 AM</td><td>Socks</td><td>Mountain Bike Socks</td><td>View SalesOrderDetails</td></tr><tr><td><div>Edit Delete Select</div></td><td>Sport-100 Helmet, Blue</td><td>HL-U509-B</td><td>Blue</td><td>13.0863</td><td>34.9900</td><td>S</td><td></td><td>7/1/2001 12:00:00 AM</td><td></td><td></td><td>no_image_available_sma...</td><td>3/11/2004 10:01:36 AM</td><td>Helmet</td><td>Sport-100</td><td>View SalesOrderDetails</td></tr><tr><td><div>Edit Delete Select</div></td><td>AWC Logo Cap</td><td>CA-1086</td><td>Mult</td><td>6.9223</td><td>8.9900</td><td></td><td></td><td>7/1/2001 12:00:00 AM</td><td></td><td></td><td>no_image_available_sma...</td><td>3/11/2004 10:01:36 AM</td><td>Cap</td><td>Cycling Cap</td><td>View SalesOrderDetails</td></tr><tr><td><div>Edit Delete Select</div></td><td>Long-Sleeve Logo Jerse...</td><td>LJ-0192-S</td><td>Mult</td><td>38.4923</td><td>49.9900</td><td>S</td><td></td><td>7/1/2001 12:00:00 AM</td><td></td><td></td><td>awc_jersey_make_small.gif</td><td>3/11/2004 10:01:36 AM</td><td>Jerseys</td><td>Long-Sleeve Logo Jersey</td><td>View SalesOrderDetails</td></tr><tr><td><div>Edit Delete Select</div></td><td>Long-Sleeve Logo Jerse...</td><td>LJ-0192-M</td><td>Mult</td><td>38.4923</td><td>49.9900</td><td>M</td><td></td><td>7/1/2001 12:00:00 AM</td><td></td><td></td><td>awc_jersey_make_small.gif</td><td>3/11/2004 10:01:36 AM</td><td>Jerseys</td><td>Long-Sleeve Logo Jersey</td><td>View SalesOrderDetails</td></tr><tr><td><div>Edit Delete Select</div></td><td>Long-Sleeve Logo Jerse...</td><td>LJ-0192-L</td><td>Mult</td><td>38.4923</td><td>49.9900</td><td>L</td><td></td><td>7/1/2001 12:00:00 AM</td><td></td><td></td><td>awc_jersey_make_small.gif</td><td>3/11/2004 10:01:36 AM</td><td>Jerseys</td><td>Long-Sleeve Logo Jersey</td><td>View SalesOrderDetails</td></tr></table><div>14 Page 1 of 30</div><div><div><div><div>Name</div><div>ProductNumber</div><div>Color</div><div>StandardCost</div><div>ListPrice</div><div>Size</div><div>Weight</div><div>SeStartDate</div><div>SeEndDate</div><div>DiscontinuedDate</div><div>Thumbnail#PhotoFileName</div><div>ModifiedDate</div><div>ProductCategory</div><div>ProductModel</div><div>SalesOrderDetails</div></div><div><div>HL Road Frame - Black, S8</div><div>FR-832B-S8</div><div>orange</div><div>1059.2100</div><div>1431.5000</div><div>S8</div><div>1016.04</div><div>6/1/1998 12:00:00 AM</div><div>7/10/2016 12:00:00 AM</div><div></div><div>no_image_available_small.gif</div><div>3/11/2004 10:01:36 AM</div><div>Road Frames</div><div>HL Road Frame</div><div>View SalesOrderDetails</div></div></div><div><div>Edit Delete New</div></div></div></div></div></div></div></div>		Name	ProductNumber	Color	StandardCost	ListPrice	Size	Weight	SeStartDate	SeEndDate	DiscontinuedDate	Thumbnail#PhotoFileName	ModifiedDate	ProductCategory	ProductModel	SalesOrderDetails	<div>Edit Delete Select</div>	HL Road Frame - Black, S8	FR-832B-S8	orange	1059.2100	1431.5000	S8	1016.04	6/1/1998 12:00:00 AM	7/10/2016 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Road Frames	HL Road Frame	View SalesOrderDetails	<div>Edit Delete Select</div>	Sport-100 Helmet, Red	HL-U509-R	Red	13.0863	34.9900			7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Helmet	Sport-100	View SalesOrderDetails	<div>Edit Delete Select</div>	Sport-100 Helmet, Black	HL-U509	Black	13.0863	34.9900			7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Helmet	Sport-100	View SalesOrderDetails	<div>Edit Delete Select</div>	Mountain Bike Socks, M	SO-B909-M	White	3.3963	9.5000	M		7/1/2001 12:00:00 AM	6/30/2002 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Socks	Mountain Bike Socks	View SalesOrderDetails	<div>Edit Delete Select</div>	Mountain Bike Socks, L	SO-B909-L	White	3.3963	9.5000	L		7/1/2001 12:00:00 AM	6/30/2002 12:00:00 AM		no_image_available_sma...	3/11/2004 10:01:36 AM	Socks	Mountain Bike Socks	View SalesOrderDetails	<div>Edit Delete Select</div>	Sport-100 Helmet, Blue	HL-U509-B	Blue	13.0863	34.9900	S		7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Helmet	Sport-100	View SalesOrderDetails	<div>Edit Delete Select</div>	AWC Logo Cap	CA-1086	Mult	6.9223	8.9900			7/1/2001 12:00:00 AM			no_image_available_sma...	3/11/2004 10:01:36 AM	Cap	Cycling Cap	View SalesOrderDetails	<div>Edit Delete Select</div>	Long-Sleeve Logo Jerse...	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The screenshot displays the Microsoft ASP.NET Dynamic Data application. The main window shows a list of products with columns: ProductNumber, Color, StandardCost, ListPrice, Size, Weight, SellStartDate, SellEndDate, DiscontinuedDate, ThumbnailPhotoFileName, ModifiedDate, ProductCategory, ProductModel, and SalesOrderDetails. A dropdown menu for ProductCategory is open, showing options like Bikes, Components, Clothing, Accessories, Mountain Bikes, Road Bikes, Touring Bikes, Handbikes, Bottom Brackets, Brakes, Chains, Cranksets, Derailleurs, Forks, Headsets, Mountain Frames, Pedals, Road Frames, and Long-Sleeve Logo Jersey. The product 'HL Road Frame - Black, 58' is selected. Below the list, a detailed view of this product is shown, including its Name, ProductNumber, Color, StandardCost, ListPrice, Size, Weight, SellStartDate, SellEndDate, DiscontinuedDate, ThumbnailPhotoFileName, ModifiedDate, ProductCategory, ProductModel, and SalesOrderDetails. The ProductCategory is 'Road Frames', ProductModel is 'HL Road Frame', and SalesOrderDetails is 'View SalesOrderDetails'.

Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data
4. A computer-implemented system for	4.1	<i>When software that performs the method of claim 1 is loaded on a typical user computer, a “system” exists as claimed. Microsoft itself makes and uses such “systems” via its internal use of Dynamic Data, and further induces users to make and use such “systems” by providing Dynamic Data and promoting its use. The direct infringement in such a case is the user’s loading the software onto a computer (making a system) and the user’s use of that system. Microsoft further contributes to the infringement of Claim 4 by providing the ASP.NET Dynamic Data software module to users. Microsoft supplies components containing such software modules in the form of tangible media including but not limited to compact discs and DVDs containing the Accused Products, as well as downloads, in which Microsoft makes a server-side tangible copy of Accused Products available for users to copy onto their own tangible media via download, which then becomes a “system” as claimed.</i>
automatically generating an end-user interface for working with the data within a relational database	4.2	<i>See Ref. 1.2, above.</i>
defined within a relational DBMS whose data is stored in machine-readable media and which is accessible to said system,	4.3	<i>See Ref. 1.3, above.</i> <i>The relational DBMS has data stored on machine-readable media, which is accessible to the computer on which the software that performs the method of claim 1 is loaded. This accessibility is shown in the discussion above for claim 1, with the relational DBMS being accessed from Dynamic Data.</i>
wherein said relational database comprises a plurality of tables, constraints and relationships in accordance with a data model comprising said tables and their column-complements and datatypes, said constraints, and the relationships across said tables,	4.4	<i>See Ref. 1.4, above.</i>
and wherein said relational database may be of any arbitrary size or complexity,	4.5	<i>See Ref. 1.5, above.</i>
said system comprising a server comprising a processor, said server further comprising:	4.5a	<i>See Ref. 1.1, above.</i> <i>As discussed with respect to 1.1 above, Web applications require servers to function. The servers comprise a processor and machine-readable media comprising machine-readable routines.</i>
(a) machine-readable routines to provide an output stream for user display and input devices,	4.6	<i>See Ref. 1.6, above.</i>

Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data
defining a user interface paradigm comprising a set of modes for interacting with a given database table,	4.7	<i>See Ref. 1.7, above.</i>
said modes comprising create, retrieve, update and delete,	4.8	<i>See Ref. 1.8, above.</i>
and a corresponding display format for each mode;	4.9	<i>See Ref. 1.9, above.</i>
(b) machine-readable routines for scanning said database and applying a body of rules to determine the table structures, constraints and relationships of said data model,	4.10	<i>See Ref. 1.10, above.</i>
and for storing representations thereof; and	4.11	<i>See Ref. 1.11, above.</i>
(c) machine-readable routines for using said representations to construct a corresponding client application,	4.12	<i>See Ref. 1.12, above.</i>
wherein said client application provides a connection to said database,	4.13	<i>See Ref. 1.13, above.</i>

Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data
provides displays of the table contents of said database for each of said modes in accordance with the display formats of said paradigm,	4.14	<i>See Ref. 1.14, above.</i>
integrates into each said mode display processes for representing, navigating, and managing said relationships across tables, for selecting among said modes, and for navigating across said tables and interacting in accordance the selected mode with the data in the tables that are reached by said navigation,	4.15	<i>See Ref. 1.15, above.</i>
while observing and enforcing relational interdependencies among data across said tables.	4.16	<i>See Ref. 1.16, above.</i>

Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data
5. A computer-readable storage medium containing a set of instructions for a general purpose computer, for	5.1	<i>Software that performs the method of claim 1 is non-transitorily recorded on a machine-readable medium, for example, a CD or DVD for distributing such software, a hard drive of a server from which such software may be downloaded over a network connection for distribution, or the working memory of a computer, on which said software has been loaded for execution. Microsoft itself makes, uses, offers to sell, and sells such computer-readable storage media, and further induces users to make and use such computer-readable storage media by providing Dynamic Data and promoting its use. The direct infringement in such a case is the user's loading of the software onto his or her computer (making) and the user's use of the computer when so loaded (use).</i>
automatically generating an end-user interface for working with the data within a relational database,	5.2	<i>See Ref. 1.2, above.</i>
wherein said relational database comprises a plurality of tables, constraints and relationships in accordance with a data model comprising said tables and their column-complements and datatypes, said constraints, and the relationships across said tables,	5.3	<i>See Ref. 1.4, above.</i>
and wherein said relational database may be of any arbitrary size or complexity, said set of instructions comprising:	5.4	<i>See Ref. 1.5, above.</i>
(a) a routine for providing a user interface paradigm comprising a set of modes for interacting with a given database table,	5.5	<i>See Ref. 1.7, above.</i>
said modes comprising create, retrieve, update and delete,	5.6	<i>See Ref. 1.8, above.</i>
and a corresponding display format for each mode;	5.7	<i>See Ref. 1.9, above.</i>

Patent No. US 7,885,981	Ref.	Microsoft ASP.NET Dynamic Data
(b) a routine for scanning said database and applying a body of rules to determine the table structures, constraints and relationships of said data model,	5.8	<i>See Ref. 1.10, above.</i>
and for storing representations thereof; and	5.9	<i>See Ref. 1.11, above.</i>
(c) a routine for using said representations to construct a corresponding client application,	5.10	<i>See Ref. 1.12, above.</i>
wherein said client application provides a connection to said database,	5.11	<i>See Ref. 1.13, above.</i>
provides displays of the table contents of said database for each of said modes in accordance with the display formats of said paradigm,	5.12	<i>See Ref. 1.14, above.</i>
integrates into each said mode display processes for representing, navigating, and managing said relationships across tables, for selecting among said modes, and for navigating across said tables and interacting in accordance the selected mode with the data in the tables that are reached by said navigation,	5.13	<i>See Ref. 1.15, above.</i>
while observing and enforcing relational interdependencies among data across said tables.	5.14	<i>See Ref. 1.16, above.</i>

CERTIFICATE OF SERVICE

On this 23rd day of August, 2016, I certify that I caused a copy of Plaintiff's Disclosure of Asserted Claims and Infringement Contentions to Defendant Microsoft Corporation to be served upon the below-listed counsel of record for Defendant via email.

Dated: August 23, 2016

s/ Ronald Abramson

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